

### 3. INFRASTRUCTURE ELEMENT

**GOAL 1: Provide for the safe, efficient, and adequate supply of sanitary sewer treatment capacity, solid waste disposal, drainage facilities and potable water service for new and existing developments while maintaining and protecting the functions of natural ecosystems and allowing for development consistent with the Goals, Objectives and Policies of the Land Use Element of the Comprehensive Plan.**

#### SANITARY SEWER SERVICE

**OBJECTIVE 1: The Town shall provide adequate sanitary sewer service to the Davie service areas in a manner consistent with regulations promulgated by applicable regulatory agencies.**

Policy 1-1      The Level of Service (LOS) standard for sanitary sewer facilities is herein adopted to be 110 gallons per capita per day (gpcd), also described as 350 gallons per day (gpd) per equivalent residential connection (ERC) for potable water service. The ERC for non-residential, commercial, industrial or institutional connections shall be based on the Daily Flow Table on the following page:

#### ANTICIPATED AVERAGE DAILY FLOW TABLE TYPES OF BUILDING USAGE

<b>RESIDENTIAL</b>	<b>Average</b>
<b>Daily Flow/Gallons per day</b>	
<b>SINGLE FAMILY DETACHED</b>	
Three (3) bedrooms	350 GPD
Two (2) bedrooms	300 GPD
Each additional bedroom	50 GPD
<b>MULTI-FAMILY BLDGS, INCLD TOWNHOUSE BLOCKS</b>	
Three (3) bedrooms	325 GPD
Two (2) bedrooms	275 GPD
One (1) bedroom	250 GPD
Efficiencies	
<b>DUPLEXES, TRIPLEXES OR QUADPLEXES</b>	Same as multi-family above
<b>MOBILE HOME PARKS</b>	
Single Coach Units (One bathroom)	200 GPD

Double Coach Units (Two bathrooms)	300 GPD
TRAVEL TRAILER PARKS	
Per Space	150 GPD
<b>OTHER THAN RESIDENTIAL</b>	
<b>Average Daily Flow/Gallons per Day</b>	
AIRPORTS	
Per Passenger	2 GPD
Per Employee	14 GPD
ASSEMBLY HALLS (PER SEAT)	2 GPD
BAR 7 LOUNGES W/NO FOOD SERVICE (per seat)	20 GPD
BEAUTY PARLORS	
Per 100 sq. ft. of work area	30 GPD
BOWLING ALLEYS	
Per Lane (including Bar & Food Service)	200 GPD
CAMPS	
Day, No Food Service (Per Person)	25 GPD
Luxury resorts (Per Person)	100 GPD
Labor (Per Person)	100 GPD
Youth & Recreation (Per Person)	15 GPD
CHURCHES (Per Sanctuary Seat)	5 GPD
DANCE Halls (Per Person)	3 GPD
DENTIST OFFICE (Per Chair)	250 GPD
FACTORIES	
With Showers (Per person/shift or 100 s.f./shift)	30 GPD
W/O Showers (Per person/shift or 100 s.f./shift)	15 GPD
FUNERAL HOMES (Per 100 s.f.)	10 GPD
HOSPITALS AND NURSING HOMES	
Per Bed Space	200 GPD
Each Residential Staff	100 GPD
HOTELS & motels (per room or unit)	150 GPD

INSTITUTIONS (public, other than those listed herein)		
Per person including resident staff		100 GPD
LAUNDRIES (COIN OPERATED)		
Per machine		275 GPD
OFFICE BUILDING (except medical & dental)		
Per 100 ft of gross building area		15 GPD
PARKS (public)		
With comfort station equipped w/flush toilets (per person)		10 GPD
RECREATION BUILDINGS (per person)		2 GPD
RESTAURANTS		
24 hours per seat		50 GPD
less than 24 hours, per seat		30 GPD
Fast Food served on paper plates, (per seat)		25 GPD
Drive-ins, per space		15 GPD
Cary-out facilities (in addition to seat Drive-in), per 100 sq. ft. of kitchen floor space		50 GPD
Plus, per employee		10 GPD
SCHOOLS		
	Elem. - High/Col	
Day - Per student or staff member	10	15
Add for shower/per student	5	5
Add for cafeteria/per student or staff	5	5
Boarding School/per student	100	100
Dormitories/per student	100	100
SERVICE STATIONS		
Full service stations		
First two bays		750 GPD
Each additional bay		300 GPD
Per fuel pump		100 GPD
SELF-SERVICE STATIONS (no service bays)		
Per Fuel Pump		50 GPD
Convenience store (per 100 sq. ft. Or fraction thereof)		25 GPD

SHOPPING CENTER

Per sq. ft. of floor space; unless otherwise listed in this table	
Or otherwise determined by the Town Engineer	0.1 GPD

STADIUMS, FRONTONS, BALL PARKS

Per seat	3 GPD
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STORES, RETAIL

(per sq. ft. of floor space)	0.1 GPD
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SPECULATION BUILDINGS

(per sq. ft. of floor space)	
to be readjusted upon occupancy	0.1 GPD

THEATERS

Indoor per seat	10 GPD
Outdoor speaker	

WAREHOUSES

With bathroom facilities in each bay	
(per sq. ft. of floor space)	0.1 GPD
With remote bathroom facilities	
(per sq. ft. of floor space)	0.04 GPD

The LOS standard shall also reflect other level of service standards utilized by the Broward County Environmental Quality Control Board pertaining to sanitary sewer facilities. The level of service standard shall be used to determine service adequacy during the earliest of the following processes: time of plat approval for properties requiring platting; or, site plan approval for development which does not require (re)platting, pursuant to the Platting Requirement of the Plan Implementation Section of the Future Land Use Plan, or for property platted prior to March 20, 1979; or, building permit review for development not requiring (re)platting or site plan approval.

Policy 1-2 All effluents, sludges and other by-products of the wastewater treatment process shall be disposed of in a manner acceptable to applicable regulatory agencies, and in an environmentally sound manner.

Policy 1-3 Sanitary sewer facilities shall be extended, to the extent that it is financially feasible, to those portions of the Davie service areas not currently served.

Policy 1-4 The Davie Utilities Department shall coordinate with developers in the provision of adequate sanitary sewer service within the Davie service areas, with developers assuming the cost and construction requirements for extension of the system to accommodate development.

- Policy 1-5 All development applications that are to be served by septic tank must receive DNRP approval for the use of septic tanks prior to the issuance of development permits from the Town.
- Policy 1-6 The Town shall continue to identify areas served by septic tanks and sanitary sewer systems, including corresponding densities and soil suitability for septic tanks. The study will identify opportunities for sewer extension, where such extension will not encourage development contrary to plan objectives and policies regarding low residential density and semi-rural community character.
- Policy 1-7: The Town shall construct wastewater facilities that will supply at a minimum an additional 2 mgd of wastewater treatment capacity needed to accommodate the growth in the Town of Davie through the planning horizon of 2015. The Town's capacity for treatment shall provide a total treatment capacity of no less than 7 mgd by 2015. The Town shall plan for future facilities expansion that will treat at a minimum a total of 12 mgd of wastewater on an annual average basis needed to accommodate the growth in the Town of Davie through the long term planning horizon of 2030.

**OBJECTIVE 2: Areas within the Town not served by the Town of Davie utilities systems shall be assured an adequate level of wastewater disposal treatment service.**

- Policy 2-1 Through the Town's Development Review Process, and pursuant to applicable land development regulations, the Town shall assure adequacy of service consistent with the level of service standards established by the Broward County Environmental Quality Control Board. Coordinate with other utility providers to ensure all residents of the Town are provided with adequate level of service standards.
- Policy 2-2 Provide residents information regarding the service boundaries for all utility providers servicing the Town, and contact information for those utility providers at the Town Hall location.
- Policy 2-3 Prior to approving a building permit or its functional equivalent, the Town shall consult with the appropriate water supplier to determine whether adequate water supplies will be available to serve the new development no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent by the Town.
- Policy 2-4 Amend the Land Development Regulations to require new development provide verification that there will be adequate wastewater treatment capacity to serve the project prior to the issuance of a certificate of occupancy. The verification shall be from the wastewater treatment

provider, and shall be provided to the Town prior to the issuance of a building permit.

**OBJECTIVE 3: Discourage urban sprawl by continuing to require the use of sanitary sewer facilities where service is available in a financially feasible manner.**

Policy 3-1 Wastewater services shall be provided to users within the Davie service areas prior to expansion into new areas.

**SOLID WASTE DISPOSAL**

**OBJECTIVE 4: Insure the provision of adequate solid waste disposal service, recognizing that solid waste disposal is a regional function, and emphasizing resource recovery.**

Policy 4-1 The level of service standards adopted by Broward County shall be applicable for the Town of Davie; specifically, the following levels shall be adopted and utilized to assess adequacy of service as follows:

<b>Land Use</b>	<b>Amount of Solid Waste</b>
Residential	8.9 lbs. per unit per day
Industrial and Commercial	
Factory/Warehouse	2 lbs. per 100 sq. ft. per day
Office Building	1 lb. per 100 sq. ft. per day
Department Store	4 lbs. per 100 sq. ft. per day
Supermarket	9 lbs. per 100 sq. ft. per day
Restaurant	2 lbs. per meal per day
Drug Store	5 lbs. per 100 sq. ft. per day
School	
Grade School	10 lbs. per room & 1/4 lbs. per pupil per day
High School	8 lbs. per room & 1/4 lbs. per pupil per day
Institution	
Hospital	8 lbs. per bed per day
Nurse or Intern Home	3 lbs. per person per day
Home for Aged	3 lbs. per person per day
Rest Home	3 lbs. per person per day

(Source: Broward County Solid Waste Element)

The level of service standard shall be used to determine service adequacy during the earliest of the following processes: time of plat approval for properties requiring platting;

or, site plan approval for development which does not require (re)platting, pursuant to the Platting Requirement of the Plan Implementation Section of the Future Land Use Plan, or for property platted prior to March 20, 1979; or, building permit review for development not requiring (re)platting or site plan approval.

Policy 4-2      Coordinate with appropriate regulatory agencies in the review and monitoring of procedures necessary to insure safe disposal of hazardous and biohazards wastes.

Policy 4-3      Renew the Interlocal Agreement for the Resource Recovery System by December 31, 2009.

**OBJECTIVE 5: The Town shall reduce by 30% the volume of landfilled materials, consistent with the County's overall 30% reduction.**

Policy 5-1      Coordinate with Broward County in its efforts to reduce the waste stream by encouraging source separation and recycling of solid waste.

## **DRAINAGE AND NATURAL GROUNDWATER AQUIFER RECHARGE**

**OBJECTIVE 6: The Town shall guide development in accord with practices that assure reasonable flood protection and promote aquifer recharge.**

Policy 6-1      The level of service for water management shall consist of the following minimum design criteria:

- Federal Emergency Management Administration (F.E.M.A.) criteria for minimum floor elevations of building sites, floodplain protection provisions.
- Maximum allowable discharges of 3/4" per acre per day for properties west of 100th Avenue and 1 1/2" per acre per day for properties east of 100th Avenue.

Policy 6-2      Continue to work with the drainage districts exercising jurisdiction in the Town to insure provision of adequate improvements to the drainage system concurrent with development impacts. This shall be accomplished throughout the Development Review process, which shall assess the adequacy of essential service at the time of plat approval for properties requiring platting, and at site plan approval for properties not requiring platting.

Policy 6-3      Restrict on-site discharges within wellfield protection areas as depicted on the Future Land Use Plan map series and in accord with the Broward County Potable Water Supply Wellfield Protection Ordinance.

Policy 6-4      Promote aquifer recharge by encouraging the provision of adequate green open space in all development through the Zoning Ordinance.

- Policy 6-5 Encourage and facilitate the creation and maintenance of revegetated wetlands, including mitigation sites, in areas of the Town that maximize the natural ecological benefits of such aquifer recharge sites.
- Policy 6-6 The Town adopts by reference the water quality standards contained in Article V, chapter 27 of the Broward County Code.
- Policy 6-7 The Town shall utilize the long-range water supply plans of the SFWMD as "best available information" under the requirements of the Growth Management Act, Chapter 163 F.S.
- Policy 6-8 The Town shall adopt the SFWMD standards for minimum stormwater flows and levels

## **POTABLE WATER SERVICE**

**OBJECTIVE 7: The Town shall provide adequate potable water service to the Davie service areas in a manner consistent with regulations promulgated by applicable regulatory agencies.**

- Policy 7-1 The Level of Service (LOS) standard for potable water facilities is herein adopted to be 145 gallons per capita per day (gpcd), also described as 350 gallons per day (gpd) per equivalent residential connection (ERC). The ERC for non-residential, commercial, industrial or institutional connections shall be based on the flow table included in Policy 1.1) The LOS standard shall also reflect other level of service standards utilized by the Florida Department of Health and Rehabilitative Services, through its Public Health Unit, for potable water service. The level of service standard shall be used to determine service adequacy during the earliest of the following processes: time of plat approval for properties requiring platting; or, site plan approval for development which does not require (re)platting, pursuant to the Platting Requirement of the Plan Implementation Section of the Future Land Use Plan, or for property platted prior to March 20, 1979; or building permit review for development not requiring (re)platting or site plan approval.
- Policy 7-2 All by-products of the water treatment process shall be disposed of in a manner acceptable to applicable regulatory agencies, and in an environmentally sound manner.
- Policy 7-3 Potable water facilities shall be extended, to the extent that it is financially feasible, to those portions of the Davie service areas not currently served by the municipal system.



- Policy 7-4      The Davie Utilities Department shall coordinate with developers in the provision of adequate potable water services within the Davie service areas, with developers assuming the cost and construction requirements for extension of the system to accommodate development.
- Policy 7-5      The Town shall coordinate with appropriate entities, including the South Florida Water Management District, in encouraging, implementing and publicizing conservation techniques during water conservation periods.
- Policy 7-6      Land Development regulations, shall encourage the use of native vegetation and xeriscape in new development, to reduce dependency on potable water supply.

**OBJECTIVE 8: Areas within the Town not served by the Town of Davie systems shall be assured an adequate level of potable water service.**

- Policy 8-1      Through the Town's Development Review Process, and pursuant to applicable land development regulations, the Town may assure adequacy of service consistent with the level of service standards established by the Florida Department of Health and Rehabilitative Services, through its Public Health Unit.
- Policy 8-2      Prior to approval of a building permit or its functional equivalent, the Town shall consult with any applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance by the Town of a certificate of occupancy or its functional equivalent.
- Policy 8-3      Amend the Land Development Regulations to require new development provide verification that there will be adequate capacity to serve the project prior to the issuance of a certificate of occupancy. The verification shall be from the water supplier, and shall be provided to the Town prior to the issuance of a building permit.

**OBJECTIVE 9: Discourage urban sprawl by continuing to require the use of municipal potable water service where service is available in a financially feasible manner.**

- Policy 9-1      Potable water service shall be provided to users within the Davie service areas prior to expansion into new areas.

**OBJECTIVE 10: Develop and implement a Town-wide strategy for public water conservation.**

- Policy 10-1      Develop and implement a water conservation education program to educate residents, businesses, and industries on the importance of water conservation. The program shall include such measures as pamphlets,

- web pages, and providing time and materials at Town Hall and at school and community events.
- Policy 10-2 Adopt water conservation measures with regard to Town property and Town operations, and comply with any water conservation ordinance in effect in the Town.
- Policy 10-3 Coordinate with the South Florida Water Management District concerning strategies to reduce per capita water use.
- Policy 10-4 Develop land development regulations requiring the installation of water reuse infrastructure on all new subdivisions, and commercial and multi-family developments.
- Policy 10-5 Pursue the establishment and use of reuse systems as part of the Town's water supply.
- Policy 10-6 Consistent with public health and safety, sanitary sewer, solid waste, drainage, adequate water supplies, and potable water facilities shall be in place and available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent.
- Policy 10-7 The Town will analyze the Anticipated Average Daily Flow Table to more accurately reflect actual demand by use and unit sizes, with special consideration given to adjustments based on the potential urban uses anticipated to occur within the RAC and TOC.
- Policy 10-8 The Town will develop a reverse osmosis treatment facility and close its North Treatment Plant, as detailed in the 10 Year Water Supply Facilities Work Plan to provide the alternative water supply needed to meet future demand.
- Policy 10-9 The Town's water supply plan will be consistent with the standards and regulations established by the SFWMD, FDEP, State and other jurisdiction agencies.
- Policy 10-10 The Town will evaluate the production, expansion capabilities and life expectancy of the water treatment plants in each update to the water supply plan.
- Policy 10-11 Davie will provide for new water supply sources from the Floridan aquifer or other alternative water supply sources, other than the Biscayne Aquifer.
- Policy 10-12 The Town shall construct facilities that will supply 10.0 mgd pf water treatment capacity needed to accommodate growth in the Town of Davie through the planning horizon of 2015. The Town shall plan for future

facilities expansions that will provide a total capacity of 16.0 mgd of water on an annual average basis to accommodate the growth in the Town of Davie through the long term planning horizon of 2030.

- Policy 10-13 The Town shall acquire the land necessary for the construction of or expansion of existing facilities.
- Policy 10-14 The Town shall encourage and promote the use of innovative and alternative technologies to augment water resources including; conventional water irrigation piping systems, constructed wetlands, aquifer storage and recovery (ASR), groundwater recharge and indirect reuse systems.
- Policy 10-15: The Town shall amend the Land Development Code by December 2010 to allow for the use of innovative water conservation techniques by homeowners and new developments consistent with Florida Friendly principles.
- Policy 10-16: The Town shall apply for water Savings Incentive Program (SIP) funds to provide residents with opportunities for replacement appliances that support water conservation.
- Policy 10-17: The Town shall implement a leak detection program through the installation of new meters providing automatic readings throughout the Town of Davie Utility Service area by December 2012.
- Policy 10-18: The Town will coordinate with the various utility providers in the Town of Davie to support their leak detection programs and/or the development of one.
- Policy 10-19: The Town will adopt Florida Friendly landscape design requirement into the Land Development Code consistent with those developed by the SFWMD and IFAS within six months of such requirements being promulgated.

**OBJECTIVE 11:** The Town shall develop a town-wide strategy for water reuse by December 2010. Such plan will at a minimum identify the level of reuse desired by the Town; the phasing of the infrastructure with a focus on the major irrigation users within the Town's utility service area; and associated changes to the Land Development Code for successful implementation.

- Policy 11-1 The Town shall implement the approved and adopted town-wide strategy for water reuse including a rate structure and the feasibility of requiring all new development within the Regional Activity Center and Transit Oriented Corridor which requires a site plan or subdivision approval to install reuse lines, even if those lines will be dry at the time of installation by December 2012.

- Policy 11-2     The Town shall examine the financial feasibility of utilizing reuse at all Town and County owned park facilities and coordinate for funding priorities from the various agencies by December 2012.
- Policy 11-3     At the time of major roadway construction, the Town or other utility service provider shall be consulted for the availability to install reuse pipes concurrent with other construction activity. The Town shall include the installation of reuse infrastructure as part of the overall cost of reconstruction when utilizing grants or other funding sources.

## **INFRASTRUCTURE UTILITIES: GOALS, OBJECTIVES AND POLICIES**

All departments in the Town participating in the implementation of this Element shall be required to operate within the framework established by the Goals, Objectives and Policies. All decision-making with regard to capital improvements and expenditures, shall reflect the Goals, Objectives and Policies. Annual budget review and capital improvement programming shall reflect consideration of needs that have been determined with respect to the Goals, Objectives and Policies.

Town land development regulations shall be amended, as necessary, to implement the requirements of this Element.

The following procedures address the requirement of Chapter 9J-5, F.A.C. to provide monitoring and evaluation procedures for each element.

- Continued compliance with regulations promulgated by appropriate regulatory agencies which address the quality and quantity of services (Objectives 1,6).
- Coordination with providers of services within the Town other than the Town of Davie, to insure adequate services at acceptable levels of service (Objectives 2,7).
- Demonstrable growth in the number of customers served, in accordance with the Capital Improvements Program (Objectives 3,8).
- Maintenance of favorable bond rating for municipal improvements.

## MONITORING AND EVALUATION

The following procedures address the requirement of Chapter 9J-5, F.A.C., to provide monitoring and evaluation procedures for each element:

- Continued compliance with regulations promulgated by appropriate regulatory agencies which address the quality and quantity of services (Objectives 1, 6).
- Coordination with providers of services within the Town other than the Town of Davie, to ensure adequate services at acceptable levels of service (Objectives 2, 7).
- Demonstrable growth in the number of customers served, in accordance with the Capital Improvements Program (Objectives 3, 8).
- Maintenance of favorable bond rating for municipal improvements.

The Town shall annually:

- evaluate adopted Levels of Service for potable water, sanitary sewer, solid waste, and drainage facilities to determine if standards adopted in this Element have been met.
- assess compliance with the concurrence management system through determination of whether or not adequate Levels of Service for utilities facilities serving Davie have been met.
- update capacity and demand information on an annual basis for utilities facilities serving Davie.
- monitor the extent of urban sprawl through an analysis of service and facility extensions. The analysis shall consider compliance with Policies 3-1 and 9-1 which promote development within areas where facilities and services are available before extending service areas.

assess coordination mechanisms with Broward County on the closed Broward Landfill clean-up by evaluating groundwater impacts and progress toward creating a park facility on the site.